

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Accompanying Divisional Application Under
37 CFR 1.53(b) :

Prior Application: T. SAKURAI et al
Serial No. 09/268,637
Filed: March 16, 1999

Group Art Unit: 1651
Examiner: F. Prats
For: METHOD FOR PURIFYING NUCLEIC ACID AND
APPARATUS USING THE SAME

PRELIMINARY AMENDMENT

Assistant Commissioner of Patents
Washington, D.C. 20231

December 31, 2001

Sir:

Prior to examination, please amend the above application
as follows.

IN THE SPECIFICATION

Page 1, before the first line, add the paragraph:

This is a divisional application of U.S. Serial
No. 09/268,637 filed March 16, 1999.

IN THE CLAIMS

Cancel claims 1-9 without prejudice or disclaimer, and
add new claims 15-20, as follows:

15. (New) An apparatus for purifying a nucleic acid separated from a sample containing the nucleic acid, which comprises:

- a) a treating container for receiving a mixture of an enhancing substance for binding the nucleic acid to a solid phase substance and a sample containing the nucleic acid,
- b) a display device for displaying input information,
- c) a computer, having a predetermined program therein,
- d) an operating panel for inputting operating conditions and sample information,
- e) a mechanism control unit connected to the computer,
- f) a motor for driving a syringe pump, controlled by the mechanism control unit,
- g) a motor for driving a nozzle holder, controlled by the mechanism control unit,
- h) a motor for driving an arm, controlled by the mechanism control unit,
- i) a purified product container for receiving an eluted nucleic acid from the pipette tip, and
- j) a detaching implement, controlled by the mechanism control unit, for detaching from a movable nozzle, a nucleic acid trapping pipette tip, which has a solid phase containing silica therein and has an opening at one end thereof, and another opening at the other end thereof, the movable nozzle being operated by a nozzle holder,

wherein the apparatus is operated automatically by the program.

16. (New) A liquid sample handling apparatus comprising a syringe pump, a movable nozzle connected via a pipe to the syringe pump, an elongated pipette tip detachably connected to the movable nozzle, the movable nozzle being connected to a nozzle holder for operating the movable nozzle, the pipette tip having an opening at the connecting point with the movable nozzle and another opening at the opposite end, the pipette tip being able to enclose a solid phase containing silica, wherein a mixture of a binding enhancing substance for binding the nucleic acids to the solid phase and a sample containing the nucleic acids, a washing solution for washing the solid phase and an eluting solution for eluting the nucleic acids adsorbed to the solid phase are separately sucked and discharged into and from the pipette tip by means of the syringe pump.

17. (New) A liquid sample handling apparatus comprising a syringe pump, a movable nozzle connected via a pipe to the syringe pump, an elongated pipette tip detachably connected to the movable nozzle, the movable nozzle being connected to a nozzle holder for operating the movable nozzle, the pipette tip having an opening at the connecting point with the movable

nozzle and another opening at the opposite end, the pipette tip being able to enclose a solid phase containing silica, wherein the nozzle holder moves in response to a command to a position of tip rack where a plurality of pipette tips are disposed.

18. (New) In an apparatus for handling a liquid sample, an elongated pipette tip has an opening at one end for connecting to a movable nozzle and another opening at the opposite end thereof, wherein quartz wool as a solid phase substance containing silica is enclosed in the pipette tip.

19. (New) The elongated pipette tip according to claim 18, wherein the quartz wool is held in the tip by means of a preventive member having through-holes.

20. (New) The apparatus according to claim 15, wherein the used pipette tip from which the nucleic acid has been eluted is exchanged with an unused pipette tip in response to an operation command.

REMARKS

The Applicants request entry of the foregoing amendments and new claims.

Claims 10-20 are now pending and presented for examination.

Respectfully submitted,


Daniel J. Stanger
Registration No. 32,846
Attorney for Applicant(s)

MATTINGLY, STANGER & MALUR, P.C.
1800 Diagonal Rd., Suite 370
Alexandria, Virginia 22314
Telephone: (703) 684-1120
Facsimile: (703) 684-1157
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